FORM PTO-1390 (Modified) (REV 11-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 006026.00002

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): 10/030632

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/NO00/00240	July 13, 2000	July 13, 1999

TITLE OF INVENTION

ALL YEAR TRACTION TIRE STUD SYSTEM

APPLICANT(S) FOR DO/EO/US

Iver HANSEN

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include itens (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☒ is attached hereto (required only if not communicated by the International Bureau).
   b. ☐ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. ☐ is attached hereto.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

PCT/RO/401 (4 pp.); PCT/IPEA/402 (1 p.); Copy of WO 01/08907 published July 13, 2000 w/PCT/ISA/210: Specification (4 pp.), Claims 1-14 (2 pp.), Abstract (1 p.), 6 Sheets of Drawings; PCT/IPEA/408 (3 pp.)

531 Rec'd PCT/PT 11 JAN 2002

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
10/030632	PCT/NO00/00240	006026.00002

24. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☒	Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1040.00**	
☐	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$890.00**	
☐	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$740.00**	
☐	International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$710.00**	
☐	International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**	

ENTER APPROPRIATE BASIC FEE AMOUNT =	**$1,040.00**	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	**$0.00**	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	14 - 20 =	0	x $18.00	**$0.00**	
Independent claims	1 - 3 =	0	x $84.00	**$0.00**	
Multiple Dependent Claims **(check if applicable)**.			☐	**$0.00**	
TOTAL OF ABOVE CALCULATIONS =				**$1,040.00**	
☒ Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				**$520.00**	
SUBTOTAL =				**$520.00**	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +				**$0.00**	
TOTAL NATIONAL FEE =				**$520.00**	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).** ☐				**$0.00**	
TOTAL FEES ENCLOSED =				**$520.00**	
				Amount to be: refunded	$
				charged	$

a. ☐ A check in the amount of _____ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. **19-0733** in the amount of **$520.00** to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **19-0733** A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

BANNER & WITCOFF, LTD.
1001 G Street, N.W., 11th Floor
Washington, D.C. 20002

SIGNATURE

Christopher R. Glembocki
NAME

38,800
REGISTRATION NUMBER

January 11, 2002
DATE

Attorney Docket No. 006026.00002
International Application No. PCT/NO00/00240

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Iver HANSEN

BOX PCT

National Phase Application
PCT/NO00/00240
Filed: July 13, 2000

Serial No.: Unassigned

Group Art Unit: Unassigned

Filed: CONCURRENTLY HEREWITH

Examiner: Unassigned

For: ALL YEAR TRACTION TIRE STUD SYSTEM

PRELIMINARY AMENDMENT

Assistant Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Preliminarily to the examination of the above-identified application, kindly amend the application as follows:

In the Specification:

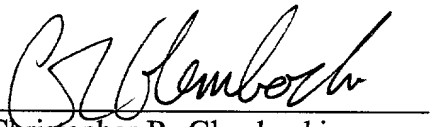
Page 1, after the title, insert the following paragraph:

--This is a U.S. National Phase Application Under 35 USC 371 and applicant herewith claims the benefit of priority of PCT/NO00/00240 filed July 13, 2000, which was published Under PCT Article 21(2) in English and Application No.19981033 filed in Norway on July 13, 1999; Application No. 19981033 filed in Norway on December 27, 1999 and Application No. 20001122 filed in Norway on March 4, 2000.--

REMARKS

The amendment to the specification is made in accordance with 35 U.S.C. 119, 37 C.F.R. 1.78 and 37 C.F.R. 1.55. Entry is requested.

Respectfully submitted,



Christopher R. Glembocki
Reg. No. 38,800

January 11, 2002

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6/PRTS

10/030632

WO 01/08907

PCT/NO00/00240

531 Rec'd PCT/PTC 11 JAN 2002

ALL YEAR TRACTION TIRE STUD SYSTEM.

Background of the invention.

1. Field of the invention.

The present invention relates to a movable tire stud system that allows adjustability of tire studs while a vehicle is either in motion or parked to quickly help solve the problems related to driving on slippery and icy roads.

2. Discussion of the background.

Many attempts have been made to solve these problems. Most systems do not function properly over long periods due to the considerable wear and tear the studding equipment must endure during the course of driving. Some adjustable studding systems require air pressure to move studs in and out. Unfortunately, such systems function inefficiently. When the studs are pressed against road surfaced, the air tends to compress. Thus the studs are forced back down into the tires. A similar effect of insufficient pressure is seen when air is entering vehicle brake system hoses. Other systems require studs to penetrate the tire casing. This is considered by professionals to be quite unacceptable in the long run due to the heavy friction, wear and tear leading to air leakage and humidity penetrating into the tire causing steel belt corrosion and thus tire separation within a short period of time. Other known systems of movable studs are useless because the studs are either too big, too complicated, expensive, or they consist of components that are vulnerable to sandy water, frost, shocks etc. and consequently become easily damaged, jammed or worn too quickly.

Norwegian patent application #861224 shows an arrangement of studs and consists of a movable wall which combined with the inner wall of the tire forms an air chamber. Consequently, the above mentioned problems are not solved in that system because it is based on air and requires penetration of the tire casing. German laid-open application #2602544 and #1680491 and U.S.Pat.Nos.3,766,956, 3,340,921,and 3,095,918 are likewise either based on the use of air or penetration

of the tire casing thus leaving the above mentioned problems unsolved. Besides, such movable stud types often need much space. Moreover, when placing movable studs under or in the tire tread, a considerable tread thickness is normally required. Thick tread tends to cause tire heating and consequently reduced driving quality.

Icelandic laid-open publication #131970 also shows a system of movable studs based on air pressure and has all the disadvantages mentioned above. Furthermore, such a system of hoses rotating inside the tire at a high speed increases the danger of explosion (flat tire). Moreover, a flat tire will probably also damage this studded system.

U.S. Pat.No.2,941.566 uses fluid to move the studs, but requires penetration of the tire casing thus leaving the above mentioned problems unsolved.

Summary of the invention.

Experiments confirm that the stud system mentioned herein has several advantages. First, it is more durable than the air systems and hydraulic systems of the cited publications because of the combination of stud jacks mounted in the shoulder of the unsiped tread blocks and the construction of the system being similar to a vehicle's brake system. When pressing the brake pedal, the piston in the brake cylinder is forced against the brake shoes. In the present invention, the tire studs are pressed against the road surface by an equivalent force. Another advantage is that wires will not leak like fluids or air systems and are more durable on bumpy roads. Adjustment of the studs can also be made possible in a simple manual fashion via a handle.

Different from the above cited publications, the studs of the present invention are mounted in extra large, unsiped shoulder blocks of the tread without penetrating the tire casing. Studs may also be mounted elsewhere on the tire tread if allowed by the tire dimensions, for instance on truck tires. Regarding this system for smaller vehicles, few tires have shoulder blocks of the tread of the necessary dimension.

However, it is possible to produce such tires.
Some rugged terrain tires have sufficient tread thickness for mounting small movable studs without penetration of the tire casing. Adaptability of the stud system may be improved through further development.
Practically speaking, a functioning system of movable studs is required infrequently. This system gives vehicle owners the convenience of not having to change tires every autumn and spring or use chains. While traditional studding systems are in use the whole winter season and are quickly worn out, movable studs will stay sharper because they are not used as often. Sharper studs means better traffic safety. Studs being used continuously throughout the winter season also means enormous extra expenses for road maintenance as well as increased air pollution. Because stationary studs are used throughout the winter season, they must be smaller than movable studs to reduce wear on roads. Consequently, professionals point out that movable studs may protrude more than traditional stationary studs, thereby reducing the breaking distance on icy roads considerably, especially compared to tires without studs. There is generally no better alternative than using tires with good studs when driving on newly fallen snow on icy roads.
Consequently, there is an obvious need for the movable stud system as presented herein. The need is met by making available a stud system of the type precisely defined in the appended patent claims.

Description of the drawings.

The stud system in accordance with the present invention is hereby described more closely by referring to exemplary embodiments thereof and with reference to the enclosed drawings wherein:

Fig.1 shows a cross section of the wheel and the studded tire wire system.

Fig.2 shows the wheel seen from the outside/the side of the wheel facing outwards.

Fig.3 shows the same side of the wheel as in fig.2, but with the hub cap on.

Fig.4 shows a cross section of the wheel when using a more simple manual tire stud system.

Fig.5 shows the same as fig.4, but with somewhat less straight studs, designed more according to the shape of the tire.

Fig.6 shows details by the shoulder block for the manual stud system seen from the side facing outwards.

Fig.7 show details by the shoulder block for the best system offering drivers remote control traction from the driver's seat.

C L A I M S

1. System of movable vehicle tire studs,
c h a r a c t e r i z e d i n t h a t said system has leak proof transmission means like metal wires for moving studs in and out of stud holes on the tire shoulders, said leak proof means like wires also movable on the tire sides outside the tire casing and may be easily replaced by being threaded in and out of protruding portions of the tire (15)(13).

2. System as claimed in claim 1,
wherein the length of said studs is not limited by the tire tread thickness because the studs (fig.1) may be mounted into the tire blocks in a more tilted position in relation to road surface than normal for tire studs and mounted in extra large unsiped portions of the tire shoulder blocks and requires less space than hydraulic system studs having pressure chambers for liquids, pistons, gaskets, valves etc.

3. System as claimed in claim 2,
wherein said wire end in a tire stud by the tire tread, said stud preferably having a frustoconical or frusto-pyramidal stud tip (39) which is thickest at the very end of the stud to improve road grip.

4. System as claimed in claim 2,
wherein the tire shoulder blocks, having extra large unsiped portions, is thereby protruding and thus making the tire tread distinctively wider than the average tire tread of the same size tire casing.

5. System as claimed in claim 4,
wherein said studs may be moved manually by a small handle (fig.5,40) to a protruding or retracted position e.g. by having a pin (42) enter into notches (41).

6. System as claimed in claim 1,
wherein the cross section drawing of the stud (8) and sleeve (44) shows an oblong/oval/rectangular shape thereby making it impossible for the stud to twist too much when being used.

7. System as claimed in claim 1,
wherein a stud moving source (1) positioned in the wheel rim may be operated either manually by a handle (2) or by an electromotor (3).

8. System as claimed in claim 7,
wherein said electromotor may be activated by the driver by touching a switch/button on the dashboard, thereby transmitting e.g. radio signals to a receiver in the wheel rim, said receiver connected to the electromotor and thus making the motor's axle shaft (4) spin clockwise or anti-clockwise. By having threads on the axle, axle rotation will make e.g. metal arm (5) move wire distributor (6) and wires (16) and studs (8).

9. System as claimed in claim 8,
wherein said stud moving components in the wheel centre are under normal circumstances leak proof and balanced / counterbalanced to counteract wheel imbalance when driving.

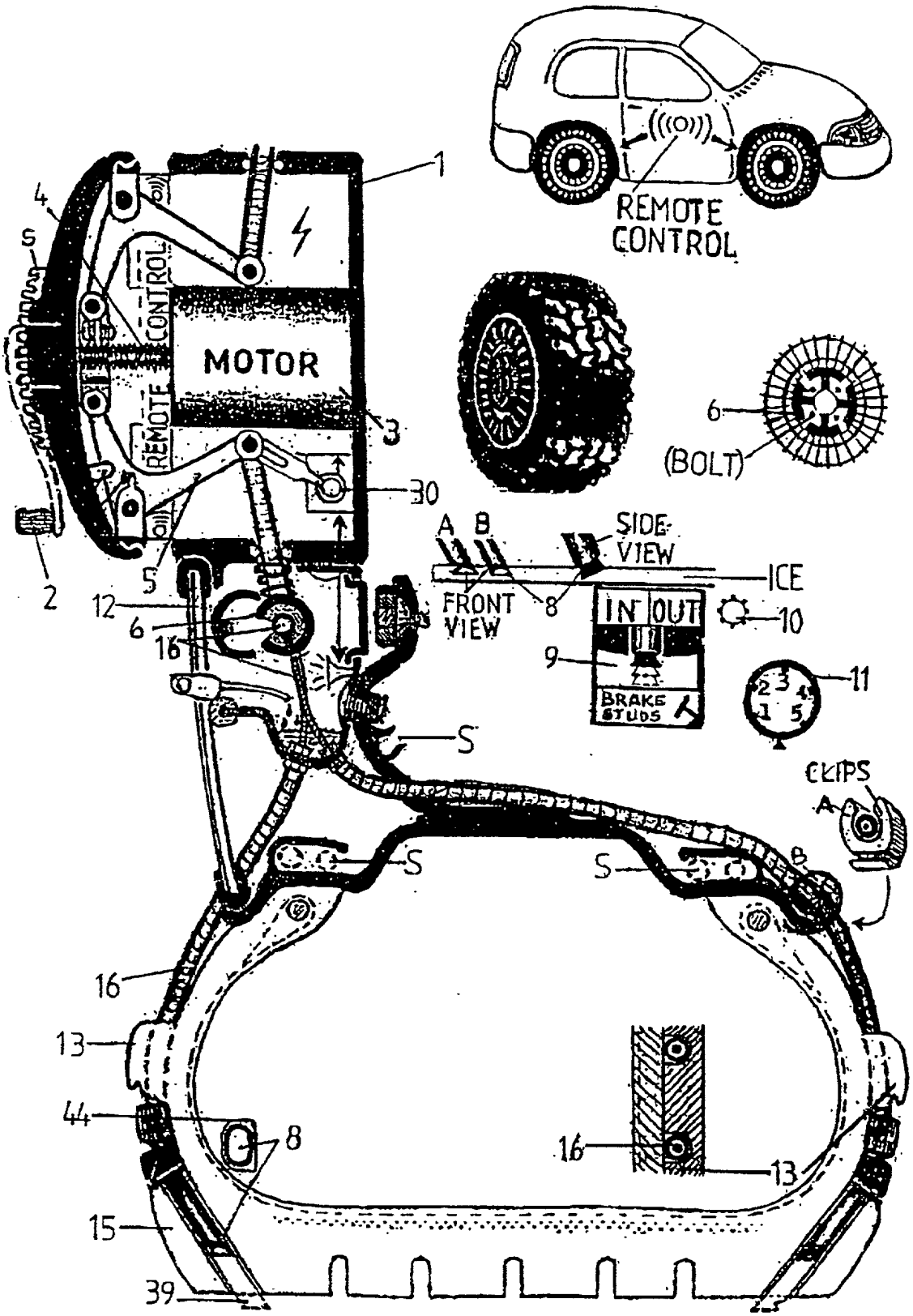
10. System as claimed in claim 8,
wherein a display (9) on the dashboard gives the driver information (30) about stud protrusion.

11. System as claimed in claim 10,
wherein said display may be adjusted by a regulator (10) according to tire thickness and stud protrusion.

12. System as claimed in claim 10,
wherein there is a timer (11) available for programming how many minutes studs are to protrude before automatic retraction.

13. System as claimed in claim 1,
wherein said system is energized by e.g. solar cells (12), induction, slip ring, pendulum dynamo, plug-in charging when parked.

14. System as claimed in claim 1,
wherein the tire sides have a protruding portion (13).


REMOTE CONTROL
MOTOR
REMOTE CONTROL
(BOLT)
SIDE VIEW
FRONT VIEW
ICE
IN OUT
BRAKE STUDS
CLIPS
1
2
3
4
5
6
8
9
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11
12
13
15
16
30
39
44
A
B
S

FIG.1

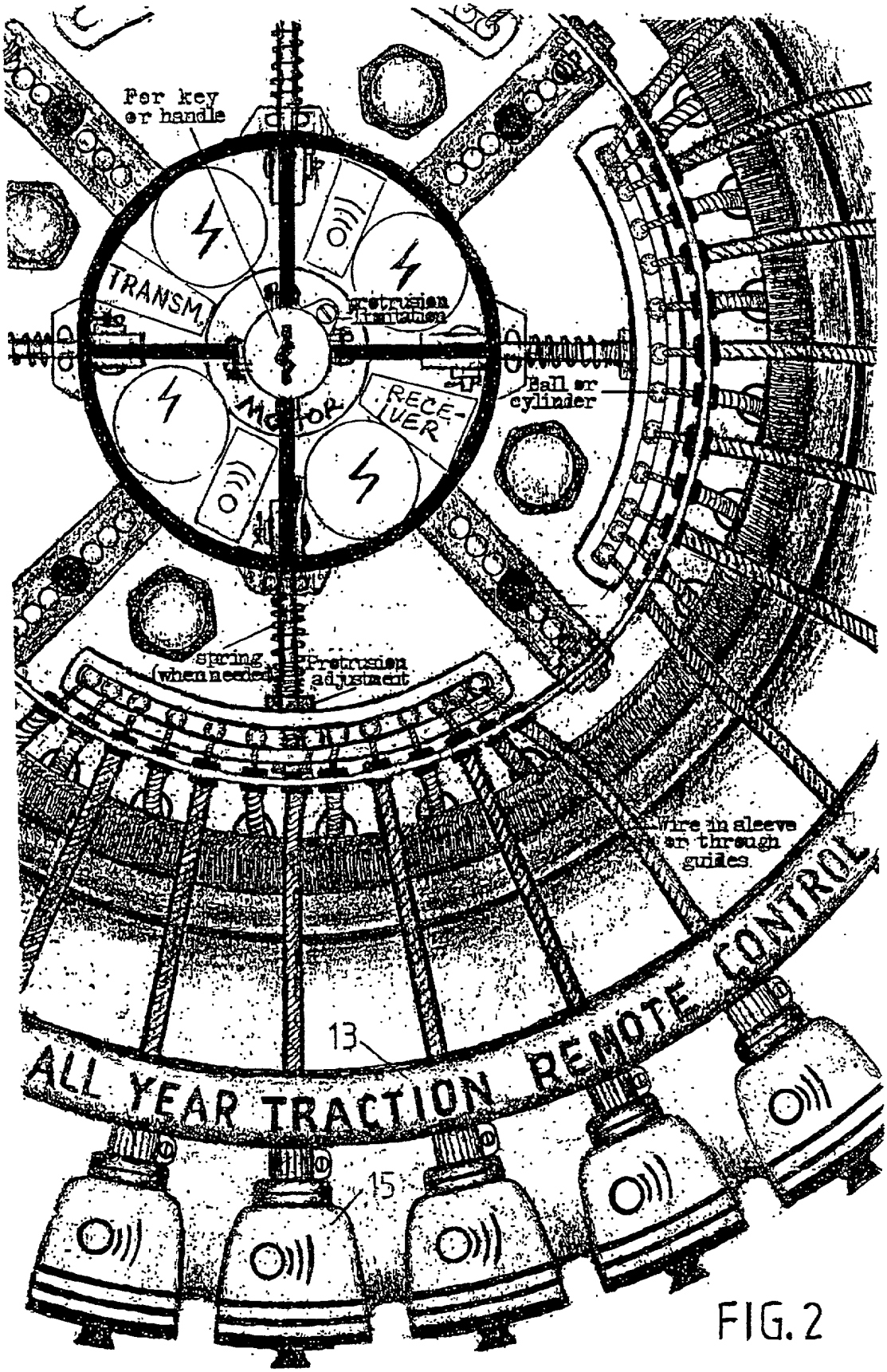
For key or handle
TRANSM.
MOTOR
RECE-IVER
protrusion limitation
Ball or cylinder
spring (when needed)
Protrusion adjustment
wire in sleeve or through guides
13
15
ALL YEAR TRACTION REMOTE CONTROL

FIG. 2

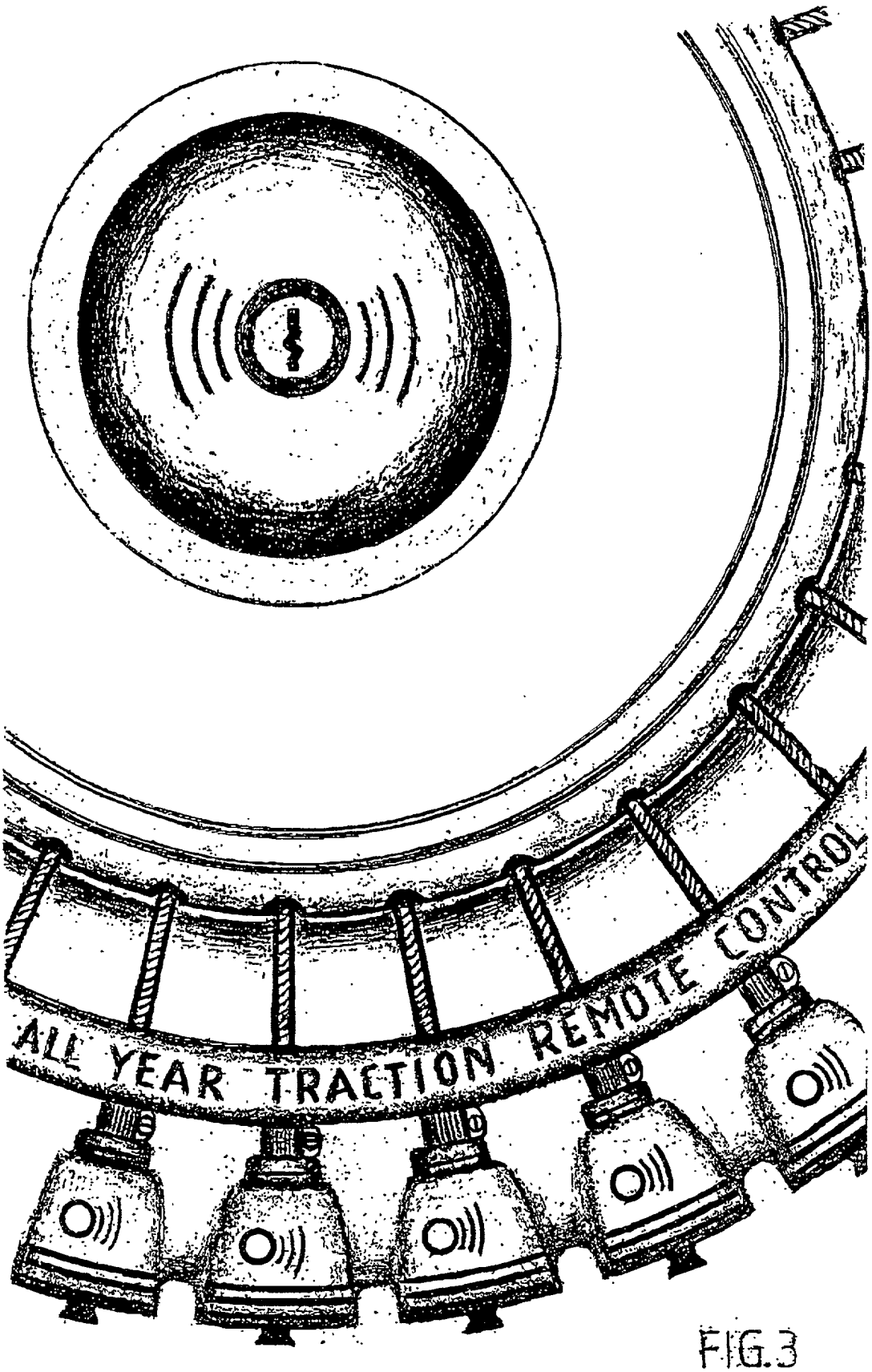

FIG.3

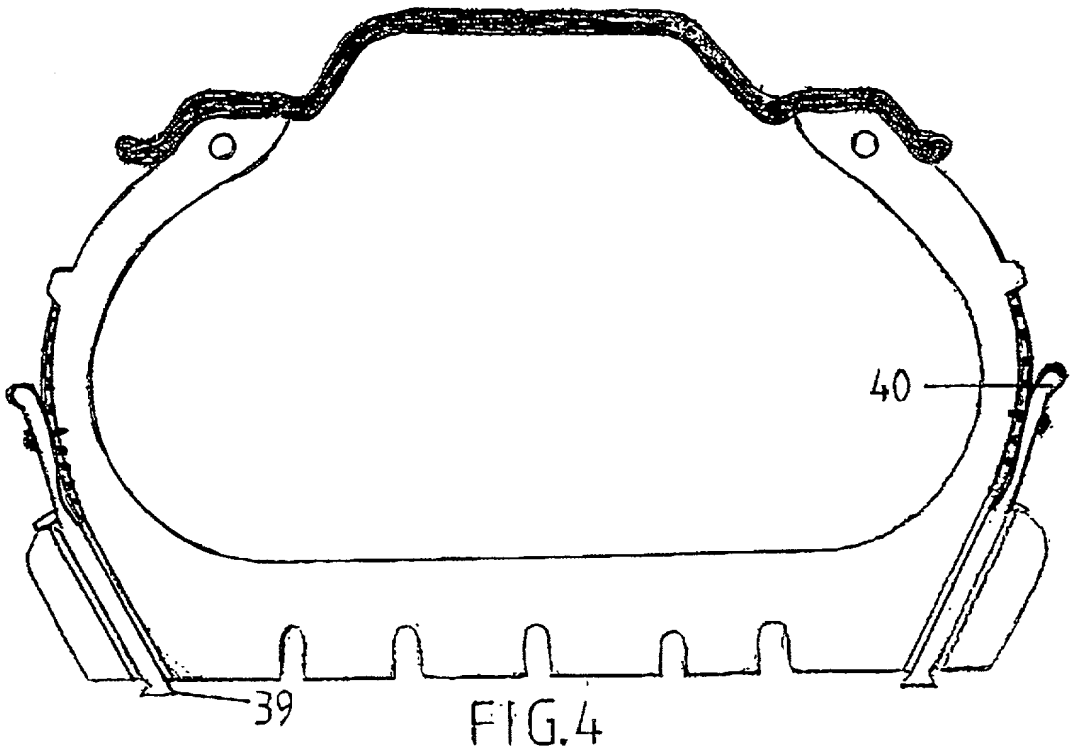

FIG.4

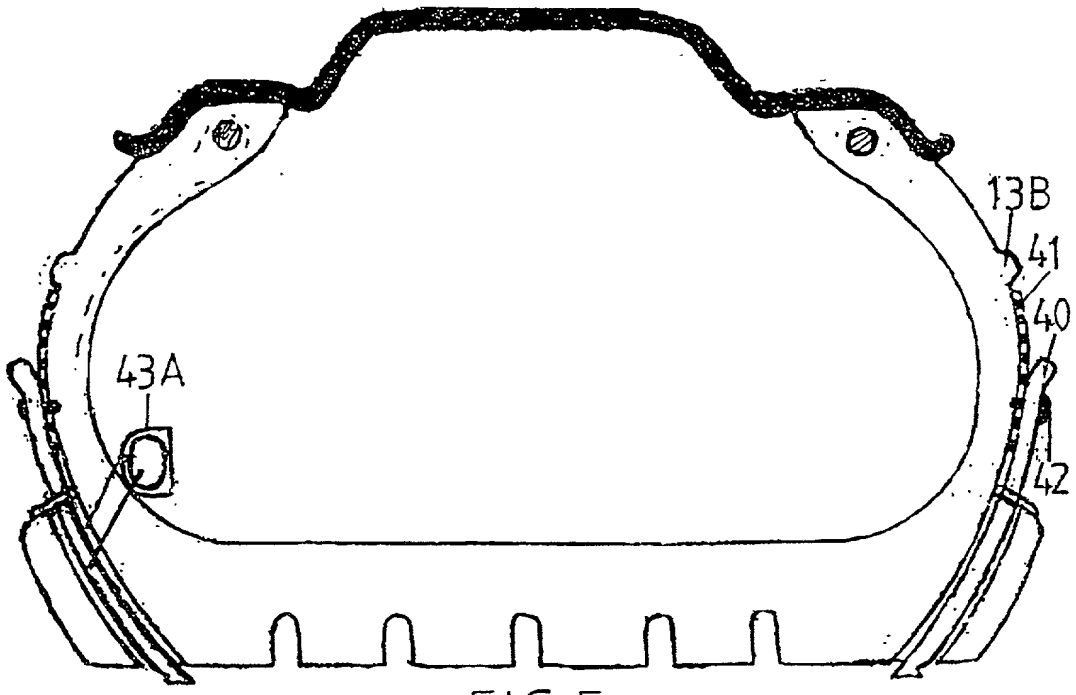

FIG.5

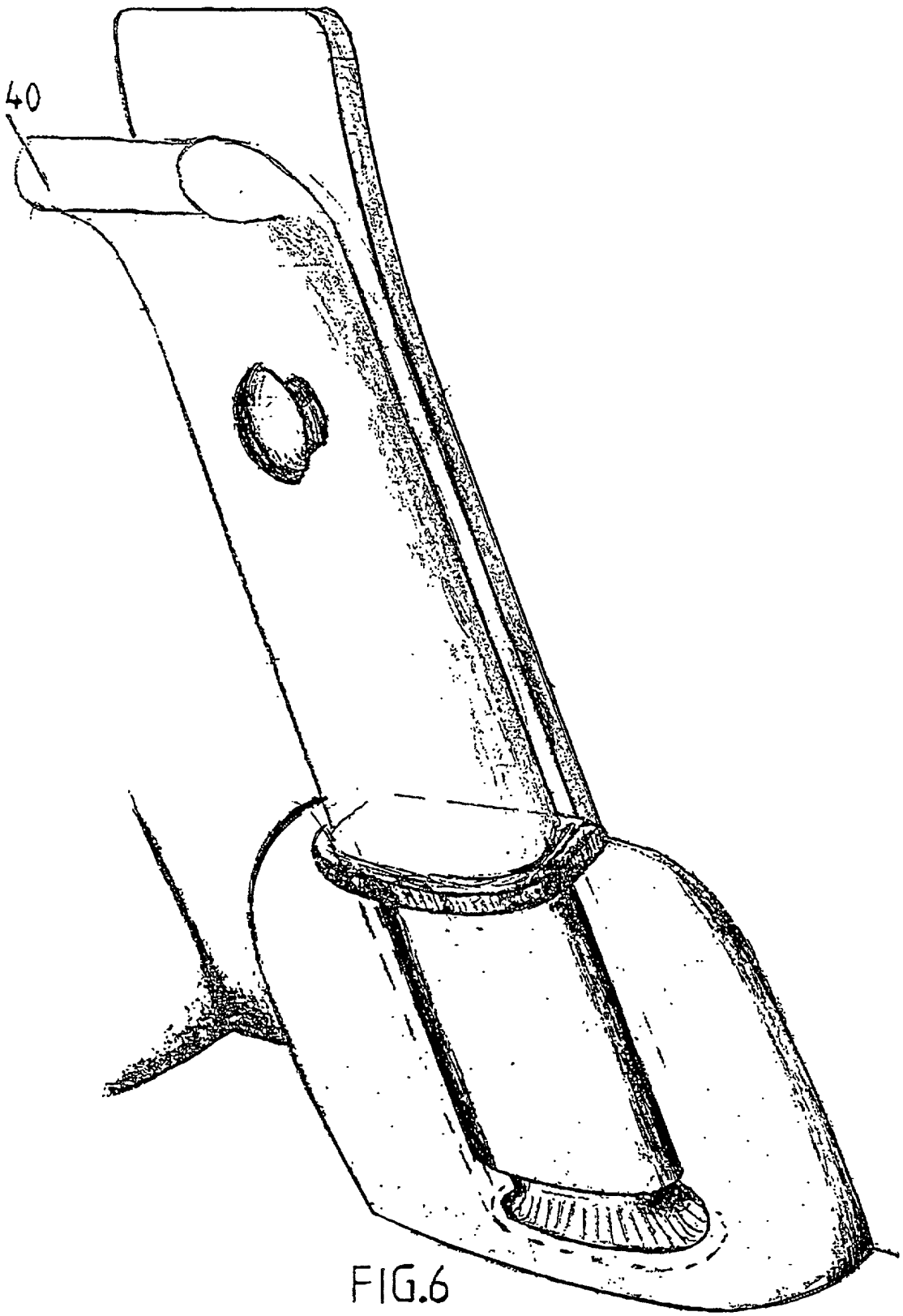

FIG.6

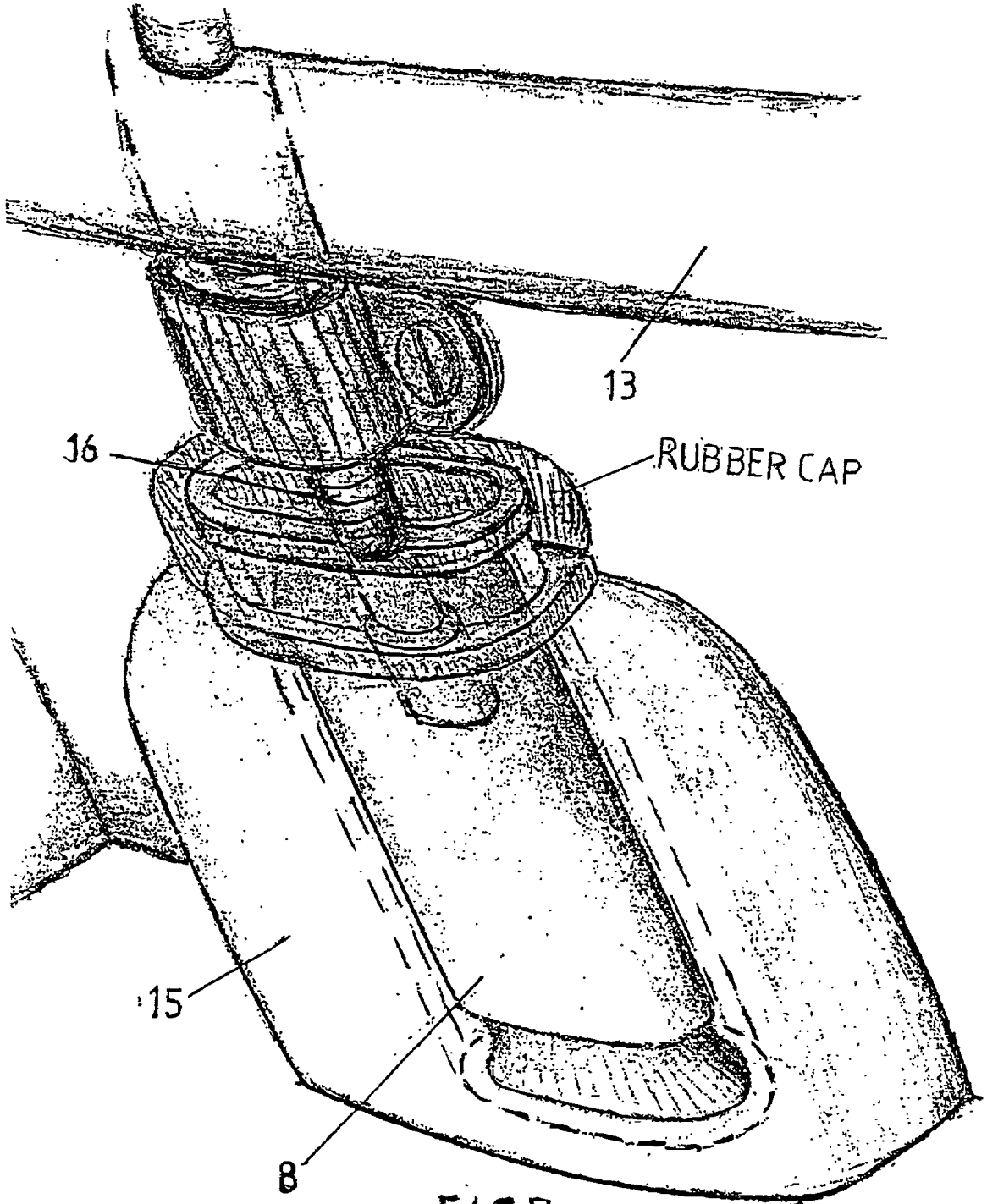

FIG.7

Banner & Witcoff Ref. No. 006026.00002
Client Ref. No.

SOLE DECLARATION FOR PATENT APPLICATION

As the below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my names;

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **ALL YEAR TRACTION TIRE STUD SYSTEM**, the specification of which

- ☐ is attached hereto.
- ☐ was filed on _____ as Application Serial Number _____ and was amended on _____ (if applicable).
- ☒ was filed under the Patent Cooperation Treaty (PCT) and accorded International Application No. PCT/NO00/00240, filed July 13, 2000, and amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate having a inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Country	Application No.	Date of Filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed Under 35 U.S.C. §119
Norway	19981033	13 July 1999		Yes
Norway	19981033	27 December 1999		Yes
Norway	20001122	4 March 2000		Yes

Prior United States Provisional Application(s)

I hereby claim priority benefits under Title 35, United States Code, §119(e)(1) of any U.S. provisional application listed below:

U.S. Provisional Application No.	Date of Filing (day, month, year)	Priority Claimed Under 35 U.S.C. §119(e)(1)

Prior United States Application(s)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Date of Filing (Day, Month, Year)	Status — Patented, Pending, Abandoned

Banner & Witcoff Ref. No. 006026.00002
Client Ref. No.

Power of Attorney

And I hereby appoint, both jointly and severally, as my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith the practitioners at:

Customer Number: 22907 (WDC)

Please address all correspondence and telephone communications to the address and telephone number for this Customer Number.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature Iver Hansen Date JANUARY 10, 2002

Full Name of Inventor HANSEN (Family Name) Iver (First Given Name) (Second Given Name)

Residence Hyggen, NORWAY NOX Citizenship Norway

Post Office Address ~~Gjendalen 3, N-3442 Hyggen, NORWAY~~ JERDAL, N-3442 HYGGEN, NORWAY.